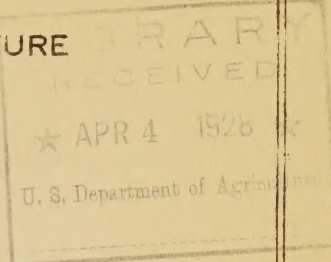


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UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF COOPERATIVE EXTENSION WORK
AND
BUREAU OF PLANT INDUSTRY COOPERATING



VOLUME 6

April 1928

NUMBER 4

The Extension Pathologist

"TO PROMOTE ECONOMIC CROP PRODUCTION,
IMPROVE THE QUALITY OF PLANT PRODUCTS, AND
REDUCE WASTAGE IN STORAGE, TRANSIT, AND AT THE MARKET"

"CHECKING-UP" ON THE WHEAT SMUT CONTROL PROGRAM

THE NEED FOR MORE INFORMATION ABOUT PLANT DISEASES AS THEY OCCUR
DURING THE MARKETING PERIOD

WITH THE STATES

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OF COOPERATIVE EXTENSION WORK, UNITED STATES DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

The Extension Pathologist

Published by the American Society of Extension Pathologists
1910

Volume 1, No. 1
January, 1910

THE EXTENSION PATHOLOGIST

Volume 6.

April, 1928.

Number 4.

Contents of This Issue.

Page.

"CHECKING-UP" ON THE WHEAT SMUT CONTROL PROGRAM.	38
Copper Carbonate Control of Bunt in California.	38
The Value of "Check-Up" Work in Colorado in the Control of Smut in Small Grains.	39
"Checking-Up" on Wheat Smut Demonstrations in Indiana	40
Wheat Smut Control Farmer Leaders Trained in Kansas.	41
The Maryland Survey	42
Nebraska "Checks-Up" on Wheat Smut Control.	42
The Work in Nevada.	43
Four Years' Work in Pennsylvania.	44
"Check-Up" on Copper Carbonate Treatment Desired for North Carolina	45
THE NEED FOR MORE INFORMATION ABOUT PLANT DISEASES AS THEY OCCUR DURING THE MARKETING PERIOD	45
WITH THE STATES	
Kansas	49
Maryland	50
New Jersey	
Virginia	
Wisconsin.	51

THE UNIVERSITY OF CHICAGO

CHICAGO, ILL., JANUARY 10, 1911

DEPARTMENT OF CHEMISTRY

TO THE HONORABLE CHIEF OF BUREAU

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Yours very truly,
J. H. VAN VLECK

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"CHECKING UP" ON THE WHEAT SMUT CONTROL PROGRAM.

One of the outstanding pieces of extension work has been the introduction of the copper carbonate seed treatment for control of stinking smut of wheat. Faced with enormous losses in the field and at the market due to this disease, extension agronomists, extension pathologists and county agents have for several years worked hand in hand with farm leaders, millers, elevator managers, bankers, railroad officials and representatives of other interested groups in bringing into practice the methods developed by State and Federal research pathologists.

It is generally realized that pressure on this subject must be continued and that farmers must constantly be reminded that the treatment of seed wheat is one of the necessary steps in a good wheat production program.

In the spring wheat area an active seed treatment campaign is drawing to a close at the present time. In the winter wheat sections, plans are being drawn up for work during the summer and fall months. Now is the time to make plans for surveys, the results of which can be used when carrying on the next campaign.

The wheat smut story from all states would cover more space than we are able to use. The following brief accounts however, are suggestive of work which is being carried on, particularly on the survey phases of the project.

F. C. M.

Copper Carbonate Control of Bunt in California - 1927.

By W. W. Mackie, Associate Agronomist,
Agricultural Experiment Station, Berkeley, California.

Copper carbonate is practically the only chemical now used to control bunt in California. The ease, cheapness, and efficiency of this method has permanently fixed it with grain farmers. No grain farmer dares to complain of heavy losses from stinking smut in the face of caustic comments from his neighbors.

The trend of seed treatment in the state is toward the community copper carbonate treatment, either (1) as an itinerant community cooperative business, (2) as a private business, or (3) in connection with well centered grain warehouses. The cooperative itinerant outfit in San Luis Obispo County cost \$650.00 for the Carter disk recleaner, the Calkins duster, and the stationary engine.* Over 214 tons of wheat seed were

* Coke, J. E., Cleaning Up on Wheat Smut, EXTENSION PATHOLOGIST, Vol. 6, #2, Feb. 1928.

treated in thirty-three days, at a charge of \$2.55 per ton, followed by a \$.50 per ton rebate. The private itinerant outfit in Butte County used the Carter disk recleaner and a home-made but efficient duster. More than 378 tons of seed wheat were recleaned and dusted. The charge was \$.25 per sack of 140 pounds.

Large warehouses at Stockton, Corcoran, Madera, and elsewhere have equipment for recleaning and dusting seed. The large outfits do a much better job of recleaning, for they remove all the wild oats and barley, which is impossible for the usual small farm outfit.

New machines for dusting have appeared during the year, namely, the Gollbach treater and seeder, the worm conveyor and the revolving baffle types. The Gollbach machine treats the seed as it is sown by an ordinary broadcast seeder (about 80 per cent of the grain acreage in California is broadcasted). The cutter worm conveyor is very efficient for warehouse use. The revolving baffle machine made by The Mountain Copper Company is the smallest and most efficient in the application of dust, and the most easily cleaned of holdover seed, as it cleans itself at once completely by gravity.

The Value of Check-Up Work in Colorado in
The Control of Smut in Small Grains

By Waldo Kidder, Extension Agronomist, Colorado

Several years ago, in Colorado we had heavy smut losses in winter wheat due to a season which was favorable for the disease and the fact that because of variable results secured with the old methods of treating, farmers had become lax in this important work. The time was right for an extension campaign showing the use of copper carbonate in the control of wheat smut.

Such a campaign was carried on in practically all of the small grain districts in Colorado, reaching by both direct and indirect methods practically all of the wheat growers using the elevators, druggists, bankers, newspapers and others to help. Reports showed that approximately 75% of the wheat growers used this method for treating seed wheat. It would have perhaps been the customary practice for us to accept this as being a high mark of accomplishment. In the campaign we had made the statement that if the growers used copper carbonate properly that it was practically 100% effective. We wanted to see if this were the case and how much better copper carbonate was than other methods. Mr. Lungren, Assistant Plant Pathologist for the department, and myself made some two to three hundred field determinations of smut percentage throughout the eastern part of the state to determine the value of various seed treatment methods. That year there was considerable smut.

We found that those who treated with copper carbonate averaged a trifle better than one per cent of smut while those that did not treat had an average of more than 8 per cent of smut. We found that copper carbonate was considerably better than the formaldehyde treatment and likewise better than using blue vitriol. On the basis of these figures, we were able to definitely recommend that copper carbonate was the best method of treatment for wheat and had the farmer's own figures to prove the point. We checked up again this past year and found practically the same thing to be true. As a result, it has been very easy to convince wheat growers that seed treatment is effective and a paying proposition which we might not have been able to do had this check-up not been made.

I have always believed in the value of local farm results and definite figures and comparison to be used in selling a practice to farmers.

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Checking Up on Wheat Smut Demonstrations in Indiana.

By Charles Gregory, Extension Plant Pathologist, Indiana.

Methods: There are two methods of checking up on smut demonstrations. Directly by personal visits to demonstrations and by county agent reports and indirectly through the agency of crop reporting services of the states.

Personal Visits: The value and methods of obtaining the information by personal contact is of course self-evident. This is done at the time of field demonstrations or tours. The results are comparisons of treated and untreated seed on the same farm or on different farms in the same locality.

County Agent Reports: This information is obtained by inserting one or two questions in the supplementary list sent to county agents at the time their annual report is prepared. In this way a complete report from each county is secured without an unnecessary burden to the county agents.

Crop Reporting Agencies: Questions on the amount of smut and the amount of wheat treated sent by the Crop Reporting Service located at Lafayette will give a good general idea of the smut situation in the state, but very little specific information can be obtained.

Another valuable source of information is through grain supervisor of the Bureau of Agricultural Economics. These reports give the sources of cars of smutty wheat reported in the various markets supplied by Indiana wheat. It is an excellent means of determining where the wheat treating campaigns should be concentrated.

- Purpose:
1. To determine the value of the work.
 2. To determine where future work must be concentrated.
 3. To secure publicity material.

Uses: The most valuable use for this information is publicity. Utilize all the farm papers but more particularly the state farm papers to prove to the farmers that the treatment is valuable.

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Wheat Smut Control Farmer Leaders Trained in Kansas.

By C. E. Graves, Extension Plant Pathologist, Kansas.

Kansas farmers treated seed wheat with copper carbonate for more than 1,100,000 acres last fall. This is almost 10 per cent of the Kansas acreage. With a big part of the remaining farmers planting smut-free or nearly smut-free seed we can look for the 1928 Kansas crop to be generally free from smut.

For the past two years our farmers have been thinking a great deal about smut control. It all started in 1926. There was a liberal sprinkling of bunt in the 1925 crop. The fall of 1925 was cold and wet, thus providing favorable environmental conditions for heavy infection.

We believe in Kansas that our wheat growers are a fairly intelligent group of men. They can reason, they usually show good judgment in most things, so why not train a few leaders in each county to take an active part in the campaign against bunt. Before these men can get very much enthused over their job they must know something about the life history of the bunt organism.

We give this semi-technical training at district wheat schools. Each County Agent selects ten good men for leaders. These gather at central points in the state. This year district schools were held at Wichita, Salina, and Dodge City. Twenty-two counties were represented by about 250 leaders. These leaders are now engaged in holding county schools with the County Agent and sometimes aided by the Extension Plant Pathologist.

Briefly, the work consists of showing farmers how smut lives, grows, and attacks the plant. We use a high power microscope that magnifies sixteen hundred times in order to show the smut spores actually germinating. Hundreds of farmers are seeing, by aid of the microscope, phenomena that a few years ago were unknown except to a few biological scientists. Take these germinating smut spores for example; I dare say that more people in Kansas have been germinating smut spores than in any other state. In one week of February more than 200 farmers saw spores germinating at the county wheat schools conducted by leaders.

What good is all this? You might say that all the farmer wants to know is how to control smut. Of course some farmers are content with

only that knowledge, but eighty per cent of them like to know why they do certain things. When they understand the life history of the smut organism, they can use control measures with greater intelligence beside having the satisfaction they get out of knowing why they are applying copper carbonate.

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The Maryland Survey.

By R. A. Jehle, Extension Pathologist
and
F. W. Oldenberg, Extension Agronomist
Maryland

The purpose of our check-up was to ascertain how successful our wheat growers were in the control of smut with copper carbonate dust; to compare the relative value of dusts containing 50% copper with those containing only 20% copper; and, if possible, to ascertain the cause of failure to control smut with the dust. As a result of this investigation we found no difference in control resulting from the use of weaker and stronger dusts, and that failure to control was usually due to treating wheat with too large a percentage of smut, and to careless treatment.

Wherever possible we asked the grower to sow one drill of untreated seed to compare with the treated seed. In such fields the percent of smut in the portions of the field from treated and untreated seed was ascertained. In cases where no untreated plot was left the percent of smut was ascertained in various parts of the field. These results were used for publicity to county agents and wheat growers and as a basis for planning our campaign this year.

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Nebraska "Checks Up" on Wheat Smut Control.

By D.L. Gross, Extension Agronomist, Nebraska.

The most definite check on the effectiveness of a campaign on wheat smut control can be obtained from figures giving the amount of copper carbonate sold in a given territory. After the campaign of 1926 in Nebraska, before which very little copper carbonate was used county agents reported the sale of 16 tons of copper carbonate. After the 1927 campaign a less accurate check indicated the sale of 25 tons. These sales were made in an area comprising not more than one-fourth of the state, where smut has been causing the greatest losses.

A further check, by the use of cards distributed to farmers,

1,006 of which were returned, indicated that 40% treated their wheat in 1926 and that 82% intended to treat their wheat in 1927. Six per cent indicated they would not treat in 1927, and 12% did not report on this question.

A check on sixteen trial plats designed to determine the effectiveness of the copper carbonate method under average farm conditions and scattered well over the heavy smut infested area, disclosed 1.2% smut on the treated plats and 12.8% on the untreated plats; indicating that the treatment is not completely effective but nevertheless satisfactory.

As to methods of reaching the growers we find that the smut train is very effective. This and the publicity that goes along with it allows us to reach more people than would otherwise be possible.

Circular letters are also good. We have just now prepared one for cats smut, which is to be sent out by the County Agents under their letter head. The orders for this letter so far total 20,000, enough for about one-sixth of our Nebraska farmers.

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The Work in Nevada

By Thomas Buckman, Assistant Extension Director,
Nevada.

We have been advocating the use of copper carbonate to control smut in wheat for the past four years. When we started out, the wheat in several of our agricultural valleys was very smutty but after four years of work can say that practically all the wheat in Nevada is fairly free from smut at the present time.

The total wheat acreage in 1927 in Nevada was 19,000 acres. Of this acreage 49% was given the copper carbonate treatment to control smut or 9,353 acres. Most of the farmers who do not use the copper carbonate method use the formaldehyde or bluestone dip solutions.

We have not made any field survey prior to harvest other than the inspection given fields for seed certification. I do not know of any fields that were rejected on account of stinking smut.

NO. ACRES OF WHEAT GIVEN COPPER CARBONATE TREATMENT FOR SMUT

County	No. acres of wheat	No. acres given copper carbonate treatment	Per Cent of Average by counties
Washoe	1600	1000	62 $\frac{1}{2}$
Lyon	1600	700	43 $\frac{3}{4}$
Churchill	7300	3600	49
Pershing	2500	547	21
Humboldt	1800	1800	100
Elko	1303	200	15
White Pine	425	276	64
Eureka	30	10	33
Douglas	1200	1200	100

Four Years' Work in Pennsylvania.

By R. S. Kirby, Extension Plant Pathologist, Pennsylvania.

Four years' extension work in Pennsylvania on stinking smut control have shown some remarkable results.

In the fall of 1927 approximately 205,000 bushels of wheat were treated and 35,000 pounds of copper carbonate dust was used. This means that on the average one out of every ten bushels of wheat sown in Pennsylvania in the fall of 1927 was treated. In Dauphin County, 54.2 per cent of the wheat was treated and over 20 per cent of the wheat sown in the southeastern part of the state where stinking smut was the most severe was treated before planting.

The treating was done in 60 commercial and 300 home-made machines. One commercial machine treated 8300 bushels of wheat during six weeks this past fall.

Only pure copper carbonate dust is recommended by the extension service. A survey of 281 wheat fields during the summer of 1927 showed that the farmers were getting the following results from treating with copper carbonate dust:

	Average per cent of stinking smut
Untreated fields.	7.24
Fields treated with pure copper carbonate	0.0396
" " " low grade copper carbonate.	0.437

Farmers, threshermen, grain dealers, millers and commission men are helping with the smut control work and the combined efforts indicate that the copper carbonate treating of wheat is a stable farm practice that will remain as long as stinking smut is a problem.

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"Check-Up" on Copper Carbonate Treatment Desired
for North Carolina.

By G. W. Fant, Extension Plant Pathologist, North Carolina.

While a relatively accurate estimate as to the quantity of copper carbonate secured by wheat growers in the state this year has been obtained from copper carbonate dealers, there still is a need for a check-up both with regard to the quantity of wheat actually treated and more particularly the effectiveness of the application. This is particularly true in the case of wheat growers with small acreages, who may fail to construct proper treating machines. Reports received from dealers who handled copper carbonate dust last fall indicate that more than fourteen hundred pounds of the dust were secured which should have treated wheat for at least ten thousand acres. It is likely that we shall use a blank card system, this spring, whereby growers will be requested to report the quantity of seed wheat treated and also the presence or absence of smut in wheat coming from treated grain. We hope also to supplement this with personal visits to a number of fields in at least one of the counties where the treatment was most extensively used.

*

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THE NEED FOR MORE INFORMATION ABOUT PLANT DISEASES AS THEY OCCUR
DURING THE MARKETING PERIOD.*

By V. H. Young, Plant Pathologist, University of Arkansas.

The research pathologist has in general concerned himself mainly with plant diseases which occur in the field--it is, no doubt, desirable in the main that this should be the case. But, on the other hand, one does not have to go far beyond his own market basket to discover indications of the very considerable loss that is going on after harvest. We are apt to consider a loss of five per cent in the field a serious matter

* Paper presented December 28, 1927, at Extension Session, Annual Meeting of the American Phytopathological Society, Nashville, Tennessee.

The first part of the paper discusses the importance of the study and the objectives of the research. It also mentions the scope of the study and the limitations of the study.

Methodology

The study was conducted using a qualitative research method. The data was collected through interviews with the participants. The interviews were conducted in a semi-structured manner.

The participants were selected through purposive sampling. The sample size was determined based on the saturation principle. The data was analyzed using thematic analysis. The results of the study are presented in the following sections.

The study has several limitations. The first limitation is the small sample size. The second limitation is the lack of generalizability of the findings.

Conclusion

The study concludes that the research objectives have been achieved. The findings of the study are significant and provide valuable insights into the research topic. The study also suggests some areas for future research.

but is not a similar loss to the finished product on the market a very much more serious matter? The best commercial peach growers in Arkansas, at least, have so perfected control measures that losses in the field due to brown-rot are often almost nil. These men would feel very much dissatisfied if their spray or dust schedule broke down to the extent of giving them any serious loss from brown-rot and yet when these peaches go to market it is not at all uncommon for brown-rot and often even more Rhizopus rot to practically ruin the contents of some of the containers and for practically all of them to contain an appreciable amount of rot before they reach the consumer. The speaker has had occasion to examine the contents of some dozens of boxes of western Ozark and eastern grown apples in the last few years and finds that almost without exception five or six per cent of every box is decayed mostly by Penicillium but also by Rhizopus, Cephalothecium and other fungi. The magnitude of the losses during the marketing period, however, can only be appreciated by visiting the wheel tracks where fruit and vegetables are unloaded in some large distributing center like Chicago or St. Louis. Here one can get a liberal education in the Market Pathology of practically every perishable crop grown within the limits of the United States and the adjacent tropics. No one who has not spent some time around the freight cars and warehouses, and in the push cart markets of a place like the Chicago one can realize how appalling is the volume of this loss and how bewildering is the variety of causes which bring it about.

Here in the summer time one sees the Irish potato converted in bulk into a slimy dripping mass. Fusarium rot, bacterial soft rot, asphyxiation, chemical injury from the former contents of cars and what-not make the reliable old Irish potato of the grocery store seem indeed sadly changed. Here one might, a few years ago at least, see stem-rot of watermelon and anthracnose causing losses of as much as 33 per cent of the carlot. Here one soon sees that the plant disease problem of the field and orchards, of the storage house, of the freight car and of the wholesale dealer are inextricably bound together. Indeed no one who has followed the crop from planting to selling can ever again believe that the Plant Pathologist's work is over when the crop is harvested. When one considers the labor and expense necessary to bring the crop to maturity and to bring it to market, he realizes all the more how important are even comparatively small losses at the consumer's end. When one sees the enormous amount of hand work from rehandling and sorting and when he sees the enormous refuse dumps of the wheeltracks he cannot doubt that here is one of the weakest spots in our system of plant-disease control. As was suggested before, very little information concerning losses on the market is available to the average Plant Pathologist. In an effort to get a hint at what has been happening during the last five years the speaker has examined 1693 Federal inspection blanks covering market inspections on apples, peaches, strawberries, and sweet potatoes shipped from Arkansas during the period 1922-1927. During this period 36,888 cars of apples, peaches, strawberries and sweet potatoes were shipped. We therefore have inspection slips for 4.1 per cent of the cars shipped out. The speaker has no way of knowing

that these are all of the inspections made during that time but supposes that it includes most of them. It should further be noted that inspections are generally called for mostly when the market is falling or when the particular car is in excessively bad condition and that market inspection reports, therefore, are only an index of what is happening and do not yield any authoritative data as to the actual amount of loss from plant diseases during the marketing period.

To summarize briefly the information obtained from these inspection slips, the following table is presented which shows the number of cars of apples, peaches, strawberries and sweet potatoes shipped in Arkansas during the period 1922-1927, the number of market inspections made for each of these products, the percentage of the total number of cars which were inspected and in a very rough way the findings in the cars inspected, expressed in percentage of the total number of cars of the product inspected.

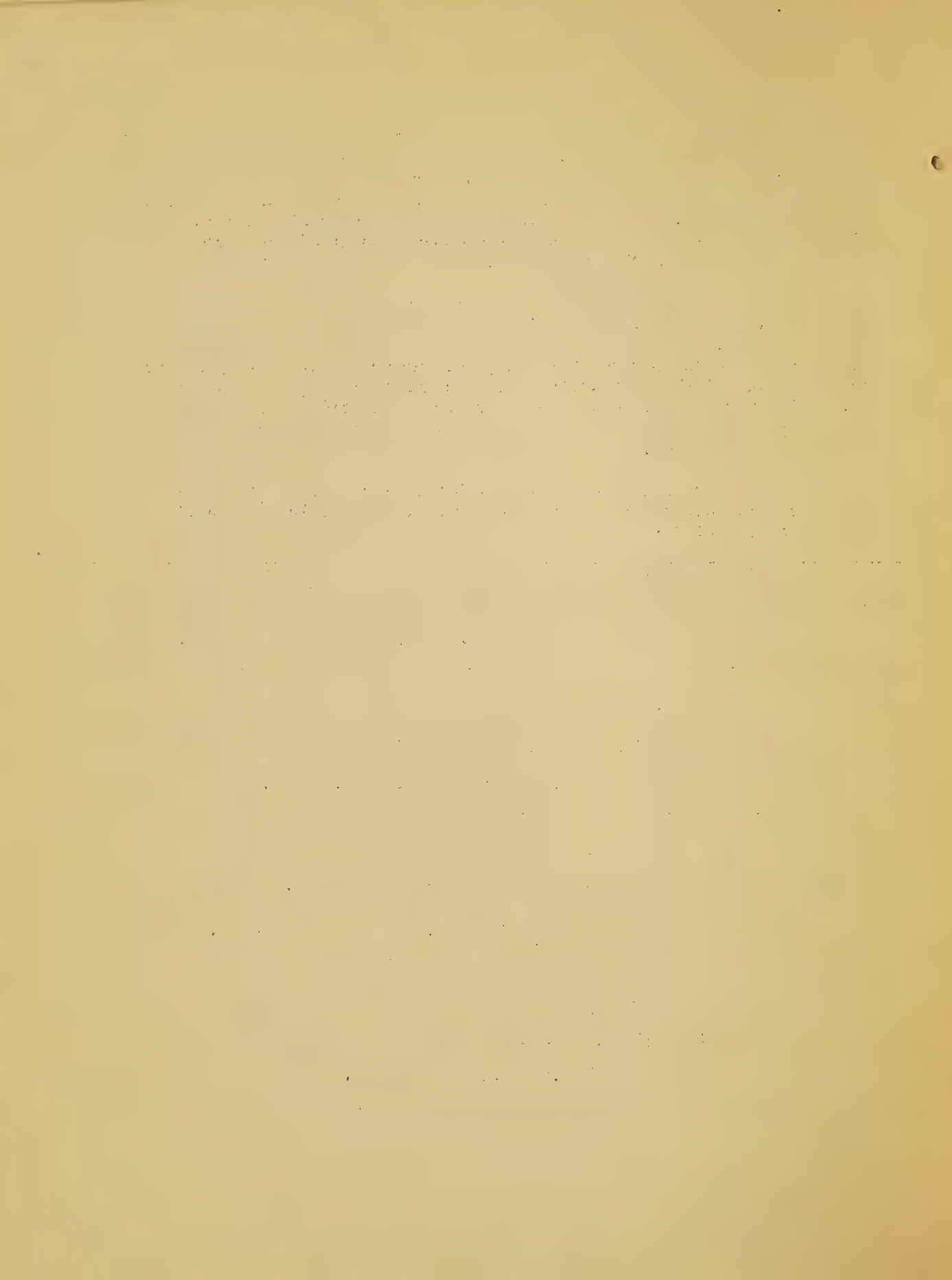
Table showing the results of Market Inspections of apples, peaches, strawberries and sweet potatoes shipped from Arkansas during the period 1922-1927:

Peaches	Year	Total Cars	Cars Inspected	% Inspected	% free of rot	some decay	much decay	% Rhiz. rot	% Brown rot	% Scab
	1922									
	1927	11896	496	4.1%	51.4%	57.5%	25.8%	29%	45.3%	19.5%

Apples	Year	Total Cars	Cars Inspected	% Inspected	% free of rot	some decay	much decay	% Black rot	% Blue Mold rot
	1922								
	1927	13823	53	.38%	30.1%	39.6%	32.0%	26.4%	32.0%

Straw-berries	Year	Total Cars	Cars Inspected	% Insp.	% free of rot	some decay	much decay	% Rhiz. rot	% Gray mold rot	% leather rot
	1922	9293	1049	11.2%	40%	40.9%	20%	24.9%	17.6%	33%
	1927									

Sweet potatoes	Year	Total Cars	Cars Insp.	% Insp.	% free of rot	some decay	much decay	% Black rot	% Soft rot	% Rhiz. rot	% Below grade
	1922										
	1927	1886	95	5%	25.2%	35.7%	41%	25.2%	20%	49.3%	37.8%



These figures give us a hint--but only a hint of what takes place on the market. No doubt inspected cars tend to run considerably worse than uninspected cars but we may feel reasonably sure that the losses in other cars are not inconsiderable and that losses for other products and for other states follow along much the same lines.

It is almost a truism to say that in the final analysis even the most fundamental types of plant pathological research must be at least remotely tied up with the economic phases of farming and since this is true one must not only consider the actual losses during the marketing period but also the effect of dumping huge amounts of diseased and partly decayed products on the market. The dealer recognizes only too well that the housewife stops buying when she finds that the products she is buying are already badly spoiled or will spoil before she can consume them. Nothing can so nearly ruin the peach or strawberry market, for example, as to dump a huge amount of poor stuff on the market. The housewife soon decides that some other product, perhaps already canned or dried, will suit her far better than fresh stuff that is only fit to be thrown in the garbage can.

The actual products lost, with their heavy freight and handling charges, the expensive sorting and rehandling at the dealers end and the disastrous and demoralizing effect on the price of both good and bad products of dumping diseased stuff on a market which is often already overloaded with products results in an economic loss of tremendous proportions.

The point that the speaker wishes to make is that the consideration of crop losses in the field, while important in deciding the course of the Plant Pathologist's research program, tells only part of the story and that the wide field of plant diseases in stored products, in products in transit and in products on the market should receive the attention which its importance demands. At the present time we need to know better just what the nature of disease is as it appears during the marketing period. During and since the World War considerable progress has been made in identifying and classifying market diseases, but much still remains to be done. We need also to know more about whether or not these diseases are primarily the result of diseases already present in the field or of unsuitable methods of handling in the field or whether they result, because the product is unsuitable because of varietal characteristics which render it unfit for anything more than local consumption. We need to know whether they are primarily the result of poor icing, improper loading, poor ventilation, delay in transit or rough handling during transit. In many cases this involves physiological and chemical researches on a large scale and with types of research equipment which are not now available to many Plant Pathologists. Perhaps the Plant Pathologist should be developing new varieties resistant to market diseases. Of course this had been done, in a sense, for many years, as breeders have been developing varieties which are good shippers, but perhaps when we understand better the relationship of some of these market troubles to plant pathogens, environmental conditions and other predisposing conditions we shall then have a more intelligent basis for selecting the qualities for which we must breed if we are to get varieties that are good shippers.

Briefly then, since the Plant Pathologist must plan his research program on the basis of the economic importance of plant diseases to those whom he is serving, he cannot ignore the diseases of plants as they appear during the storage and marketing periods. At present many Plant Pathologists are poorly equipped both as to training and as to material equipment, to follow out these lines of research. A certain amount of research on storage and market disease problems is being carried out but much information is lacking. The research pathologist who is working with diseases as they appear in the field needs far more information regarding the relationship of varieties, methods of culture, incidence of disease in the field and methods of harvesting and transporting to the freight car or storage house on the subsequent course of plant diseases. He needs to know more about the effects of weather during growth and at harvest on the subsequent behavior of the crop. We already have the excellent work of such men as Brooks and his associate on apples, of Harter and his associate on sweet-potatoes, of Walker on the onion, of Link on various market diseases and of many others, but the field is large and the present generation of Plant Pathologists are largely unfitted for the work. Since this is true, we must look to the Plant Physiologists and the Plant Chemists to provide us with workers whose training has been more highly physiological and chemical if we are to meet the Plant Pathologists' need for more definite information concerning nature and control of the diseases of plants as they occur during the marketing and storage period.

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WITH THE STATES

Kansas.

Approximately 100 cars of Irish Cobbler Potato seed that passed the field inspections for certification in Minnesota will be planted in Kansas this year. Last season ten trials showed certified Irish cobbler outyielding commercial seed 55 bushels per acre for an average.

Other Kaw Valley growers have purchased farms in Minnesota and produce their own seed or else have arranged with certain growers to grow seed of high quality and pay a premium for the extra work of taking care of a seed plot, roguing the fields, and other work necessary to the production of good seed potatoes.

C. E. Graves.

Maryland.

Horticultural schools were addressed at Easton, Towson, Smithsburg and Hancock on the subject of peach and apple diseases and their control. A canning crops school conducted at College Park and a canning crops banquet at Lisbon were addressed on diseases of peas and beans and their control. Meetings of sweet potato growers at Mardella Springs and Salisbury were addressed on the subject of sweet potato diseases and their control. All of these meetings were very well attended and much interest was manifested. Many questions were asked and the problems of the growers were extensively discussed.

The first root inspection of sweet potatoes was made in Worcester and Wicomico Counties. Thirty growers applied for certification, with fields of seed varying from one-half acre to twenty acres. Most of them had fields of one to two acres. Fourteen of these growers have seed eligible for certification, five were disqualified, and inspections for eleven have not been completed. The variety most extensively grown is the Bigstem Jersey, although there are also some Little Stem Jerseys.

R. A. Jehle.

New Jersey.

The potato growers are getting ready to plant their crop. The present indications are that the acreage will be increased approximately 10 per cent over last year. In the past not more than 5 per cent of the seed planted in Central Jersey was disinfected, whereas this year 60-75 per cent of the growers will use the organic mercury dip treatments for all or part of their seed. A considerable number of the sweet potato growers likewise plan to replace the mercuric chloride treatment with the organic mercury dips.

W. H. Martin.

Virginia.

Late Blight of Potatoes. Late blight of potatoes was unusually prevalent and destructive in certain sections of Virginia during the past season, especially in northern and southwestern sections. In Fairfax County it is reported that at least one-fourth of the crop was lost. In Augusta County it is claimed certain farmers have had to discontinue growing potatoes because of this disease. Late blight has not been very injurious in this State for several years.

Field Selection of Corn. In 1927 several checks were run to determine the value of field selection of seed corn in eradicating root, stalk and ear rot diseases. In one lot of field selected corn run through

the germinator it was necessary to discard only 9.7 per cent. as being diseased and unfit for seed. Another lot of corn, well cured but selected from a crib, 33.3 per cent. had to be discarded as unfit for seed. A third lot of corn improperly cured and open to the weather was very bad, and 50.1 per cent. had to be discarded because of disease and failure to germinate.

S. B. Fenne

Wisconsin.

The Wisconsin Extension Pathologists, better known as Plant Health Specialists, have given 89 Farmers Institute talks during the current season, besides staging plant disease demonstrations at the annual grain show, potato show, County Agent Conference and Farmers Week. Potato diseases have received major consideration with indexing and seed treatment in the front ranks. Attention has also been given to grain smut control and modified spray schedule for the control of apple scab in wet seasons. The strip film projector is proving very satisfactory. In addition to the U. S. Department of Agriculture and commercial films a newly prepared potato disease film has been used.

R. E. Vaughan

J. W. Brann

Wisconsin plant pathology seminar topics for the second semester include: Leafhopper injury by Monteith and Granowsky; Environmental relationships as affecting clubroot of cabbage by Wellman; Studies on black rot of cabbage by Angell; The toxic action of certain sulphur fungicides in relation to environment by Hamilton; Bacterial diseases of walnut and filbert by Barss; Bacterial blight of beans by Zaumeyer and Rieman; Studies on the transmission of bean mosaic by Fajardo; Studies on pathological histology and epidemiology and control of fire blight by Miller; Life cycle of Gibberella saubinetii by Norma Pearson; Studies on overwintering mosaic virus of tobacco by Ogden. Tea is served before each seminar. Visitors are gladly received.

R. E. Vaughan.

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Articles, news notes, or suggestions with regard to subjects that might profitably be discussed in this news sheet, should be addressed to:

F. C. Meier,
Extension Plant Pathologist,
Bureau of Plant Industry,
U. S. Department of Agriculture,
Washington, D. C.

